various molecules present in the type I IFN signaling pathway. The oral administration of Epimedium Koreanum Nakai exhibited both preventive and therapeutic effects on BALB/c mice against lethal doses of highly pathogenic influenza A subtypes containing H1N1, H5N2, H7N3 and H9N2.

Conclusion: Our results clearly indicated that Epimedium Koreanum Nakai contains components that play roles as immunomodulators and may be potential candidates for new antiviral drugs.

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P1.047

The activity of the primary auditory cortex and auditory pathway under acoustic stimulation: a MEMRI Study

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Purpose: Structural and functional features of the cerebral cortical layers have been extensively explored in neuroscience research. We used manganese-enhanced MRI, a non-invasive method for examining stimulus-dependent activity in the whole brain, to investigate the activity in the layers of the primary auditory cortex and the associated pathway under acoustic stimulation

Methods: Male Sprague-Dawley rats, either with or without exposure to auditory stimulation, were scanned before and 24–29 hour after systemic MnCl2 injection.Three-dimensional data set of T1-weighted images was acquired using a modified driven equilibrium Fourier transform (MDEFT) pulse sequence. Cortex linearization and layer-dependent signal extraction were subsequently performed for detecting layer-specific cortical activity.

Results: We found stimulus-dependent activity in the deep layers of the primary auditory cortex and the auditory pathways. The primary sensory and visual cortices also showed the enhanced activity, whereas the olfactory pathways did not. Regions with significantly greater activity in the stimulated rat are indicated with color maps ranging between red to yellow. These areas included auditory structures such as cochlear nucleus (CN), superior olive (SO), lateral lemniscus (LL), inferior colliculus (IC), medial geniculate body (MGB), and primary auditory cortex (Aud).

Conclusion: These results suggest the possibility that even though the primary auditory, sensory, and visual cortices showed enhanced activity to the auditory stimulation, these cortices had different associations for auditory processing in the brain network.

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P1.048

Treatment with diluted bee venom reduces both spinal inflammatory responses and central neuropathic pain behaviors after spinal cord injury in rats

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Purpose: Chemical acupuncture with diluted bee venom (DBV) has been traditionally used in eastern medicine to treat several inflammatory diseases or chronic pain conditions. We have previously shown that DBV had a potent anti- inflammatory and anti-nociceptive efficacy in several rodent pain models. In the present study, we investigated whether the treatment of DBV into Zusanli (ST36) acupoint suppressed intraspinal inflammatory responses as well as allodynic and hyperalgesic behaviors in the spinal cord injury (SCI) model of rats.

Methods: SCI was induced by T13 spinal cord hemisection after laminectomy. SCI surgery produced acute migration of the neutrophils and the dramatic increment of myeloperoxidase (MPO) activity in the spinal cord lesions at 24 hours following hemisection. In addition, the mechanical allodynic and thermal hyperalgesic behaviors were developed in the bilateral hind paws throughout the 28 days of experiment. Subcutaneous injection (0.25 mg/kg) of DBV was applied into Zusanli acupoint twice a day for five days.

Results: DBV treatment significantly suppressed neutrophils infiltration and the MPO activity at 24 hours after hemisection. Moreover, mechanical allodynia and thermal hyperalgesia were relieved throughout the experimental period. DBV injection also showed the facilitated motor function recovery as indicated by the Basso-Beattie-Bresnahan rating score. Finally, spinal glial fibrillary acidic protein (GFAP) expression, a marker for astroglial activation, was also suppressed by DBV injection.

Conclusion: These results demonstrated that the repetitive application of DBV into acupoint not only enhanced functional recovery but also reduced acute-inflammatory response and neuropathic pain behavior after SCI. This study suggests that

DBV acupuncture can be a potential clinical therapy for management of SCI.

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Studying the effects of Hoixuanhoan remedy for changes in function of local heating injured rat testes

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Purpose: To study the effect of HXH remedy on serum testosterone level (STL) and sperm quantity and quality in adult male rats

Methods: The 60 male rats (Ratus norvegicus) homogen age of 3 months, were injured their testes by hot water 430C for 30 minutes. After all these rats were divided into 03 groups: Control group: 20 rats: was received placebo; the study group I: 20 rats taken one dose of HXH (1.5 g/kg BW); The study group II: 20 rats taken double dose of HXH (3,0 g/kgBW); The rats were kept taking dose for 30 days. On the 35th day and on the 70th day, the rats were killed to test their STL and semen analysis.

Results: On the 35th day: the HXH remedy has increased sperm consentration in the group I was: 52.87± 42.37 (×106/ml); in the group II was 75.82 ± 48.28 (× 106/ml) when compared none of the controle ones ($p<0.01$). STL in the group I was 27.29± 6.36 nmol/l, the group II was 21.22 ± 6.89 nmol/l compared to 17.58 ± 4.46 nmol/l of the controle ones ($p<0.05$). On the 70 thday: the HXH remedy has increased sperm concentration for group I: 72.40 ± 39.75 (×106/ml); for group II: 113.33±13.23 (×106/ml) compared to 63.89 ± 41.74 (× 106/ml) of the controle ones ($p>0.05$). The percentage of sperm progressive at group I was 14.50 ± 10.54, at group II was 14.56 ± 7,80, compared to 10.78 ± 9.62 of the controle ones ($p<0.05$). STL and sperm abnormal morphology were significantly different compared to the controle ones.

Conclusion: HXH to make STL increase significantly, to increase sperm population in both quantity and quality significantly compareted to the controle ones.

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P1.050

Oryeongsan inhibits LPS-induced production of inflammatory mediators via blockade of the NF-κB and MAPK pathways in macrophage cells

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Purpose: Oryeongsan (OR) is an herbal medication used in east-Asian traditional medicine to treat dysuresia, such as urinary frequency, hematuria, and dysuria due to renal disease and chronic nephritis. Recent studies showed that protective effect against acute gastric mucosal injury and an inhibitory effect on the renin-angiotensin-aldosterone pathway of OR. However, its effect on inflammation still remains unknown. In this study, to provide insight into the biological effects of OR, we investigated their effects on lipopolysaccharide (LPS)-mediated inflammation in the RAW 264.7 macrophage cells.

Methods: We investigated the pharmacological and biological effects of OR on the production of pro-inflammatory cytokines, inflammatory mediators, and related products through Enzyme-linked immunosorbent assay (ELISA), reverse transcription-polymerase chain reaction (RT-PCR) and Western blot analysis. Also, we examined the activation and suppression of nuclear factor (NF)-kappaB and mitogen-activated protein kinases (MAPKs) pathways in LPS-stimulated macrophages via Western blot analysis in order to explore inhibitory mechanism of OR.

Results: OR had anti-inflammatory effects by inhibiting the production of nitric oxide (NO), tumor necrosis factor (TNF)-alpha, interleukin (IL)-6, and IL-1beta. In addition, it strongly suppressed cyclooxygenase (COX)-2 and inducible nitric oxide synthase (iNOS), NO synthesizing enzymes. It also induced heme oxygenase (HO)-1 expression and inhibited NF- kappaB signaling pathway activation and phosphorylation of MAPKs.

Conclusion: We further demonstrate the anti-inflammatory effects and inhibitory mechanism of OR in LPS-stimulated macrophages for the first time. OR contains strong anti-inflammatory activity and affects various mechanism pathways including NF-kappaB, MAPKs and HO-1. Our results suggest that OR has potential value to be developed as an inflammatory therapeutic agent from a natural substance.

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